

## **PR-II-7. The Effect of Recombinant Human Bone Morphogenetic Protein-2/Macroporous Biphasic Calcium Phosphate Block system on Bone Formation in Rat Calvarial Defects.**

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### Background

A carrier for the delivery of bone morphogenetic proteins(BMPs) should act as a scaffold for new bone formation. In addition, bone formation should be predictable in terms of the volume and shape. This study examined the ability of a macroporous biphasic calcium phosphate (MBCP) block to act as an rhBMP-2 carrier in the rat calvarial defect model.

### Materials and methods

8mm critical-size calvarial defects were created in 40 male Sprague-Dawley rats. The animals were divided into 2 groups containing 16 animals each. The defects were treated with either MBCP blocks alone or with rhBMP-2/ MBCP blocks. The histological and histometric parameters were used to evaluate the defects after a 2- or 8-week healing period (8 animals/group/healing intervals).

### Results

The shape and total augmented area were stable over the healing time. The new bone area of the rhBMP-2/MBCP group was significantly larger than the MBCP control group ( $p < 0.01$ ). The new bone area after 8 weeks was greater than that after 2 weeks in both groups. The pattern of the changes in bone healing over time was similar between the groups.

### Conclusion

These results suggest that the MBCP block can be used as a carrier system for predictable bone tissue engineering using rhBMPs.